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the former of a portion of its water by the sudoriparous glands of the skin on the one hand, and by the lymphatic vessels on the other.

That the separation of the lymph from the blood is calculated to increase its density, is proved by its chemical analysis; lymph containing from 96 to 97 per cent. of water, and blood from 77 to 82 per cent. The author regards this separation of lymph from the blood as the result of a purely vital process of the same nature as that by which the saliva and the watery portion of the urine are secreted from the circulating mass. He considers that his views are supported by the anatomical distribution of the lymphatic system: for, on the principle that organs are found in the vicinity of the places where their office is wanted, the office of the lymphatics must be general, inasmuch as the system is general. These vessels may, in fact, be regarded as the essential element of an universally distributed gland. The mode in which the lymphatics are finally connected with the blood-vessels appears also to indicate that the object in view is to keep their watery fluid separate from the blood as long as possible; for, as is well known, they do not transfer their contents into the neighbouring veins, but pour their whole fluid into the superior vena cava at the moment it is about to enter into the heart.

The remarkable manner in which the lymphatic system is developed in some of the lower tribes of animals, whose bodies are encased in an impervious horny covering, such as turtles, lizards and serpents, is adduced in further corroboration of the author's views. He regards the serous membranes as contrivances for the accommodation of a great number of lymphatics; and the intimate connexion which the function of these vessels has with the life and nutrition of internal organs he thinks is shown by the remarkable amount of disturbance consequent on inflammation, or other morbid condition of serous membranes. Finally, the author adverts to the influence which the difference of endosmotic capability engendered by the abstraction of a certain amount of water in the course of the circulation, (first between the blood corpuscles and the plasma in which they swim, and then between the liquor sanguinis and the containing channels,) must have on the capillary circulation, which he conceives it is calculated to facilitate.

2. "Further Observations on the descending fluids of Plants, and more especially the Canibium." By George Rainey, Esq. Communicated by P. M. Roget, M.D., Sec. R.S.

The author relates an experiment in proof of the sap descending from the upper to the lower part of an exogenous tree, through vessels which are continuous from the leaves to the roots; the course of these vessels being shown by the addition of a solution of iodide of potassium after they had taken up by absorption a quantity of a solution of acetate of lead. The fluids in these vessels are, he conceives, separated from the sap, which is ascending from the roots, only by the membrane of which they are composed. When the leaf-buds of a tree are vegetating, large separations are observable

between the cells of the bark, and also between the bark and the wood: while no such separations are apparent when the leaf-buds are entirely inactive. These separations are various in size, and irregular in form; their parietes consist of rows of cells, piled up one above another, like the bricks of a wall: and their cavities all communicate with one another. From these and other anatomical facts, which are given in detail by the author, he concludes that the propulsion of the sap along the vessels, resulting from the operation of endosmose, will explain the descent of the cambium, which, being the nutritious portion of the vegetable fluids, corresponds in its nature to the chyle in animals.

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March 23, 1843.

GEORGE RENNIE, Esq., V.P., in the Chair.

A paper was read, entitled, "Notice of an Extraordinary Luminous Appearance seen in the Heavens on the 17th of March, 1843," in a Letter to S. H. Christie, Esq., Sec. R.S., by Sir John F. W. Herschel, Bart., F.R.S.

Collingwood, March 17, 1843.

MY DEAR SIR,—This evening, at half-past seven o'clock, I received notice from one of my servants of a luminous appearance in the sky, visible towards the S.W., which I immediately ran out to observe, and which, as it differed in some remarkable particulars from any phenomenon of the kind I have ever before observed or seen described, I think it not unlikely to prove interesting to the Royal Society.

The evening was one of uncommon serenity and beauty: the moon, only thirty-eight hours after the full, having considerable south declination, was not yet risen. In consequence, the sun being already far enough below the horizon to leave only a faint glow of twilight in the west, the stars shone with unsubdued brilliancy, no cloud being visible in any quarter. Orion in particular was seen in all its splendour; and commencing below that constellation, and stretching obliquely westward and downwards, nearly, but not quite to the horizon, was seen the luminous appearance in question. Its general aspect was that of a perfectly straight, narrow band of considerably bright white cloud, thirty degrees in length, and about a degree and a quarter, or a degree and a half in breadth in the middle of its length; its brightness nearly uniform, except towards the ends, where it faded gradually, so that to define its exact termination at either end was difficult. However, by the best judgement I could form, it might be considered as terminating, to the eastward or following side, at, or a very little beyond, the stars  $\iota$ ,  $\kappa$ ,  $\lambda$  Leporis, which stars (being of the fifth, or at most 5.4 magnitude) were pretty conspicuously visible; from which circumstance the degree of brightness of the ground of the sky in that region may be well estimated. Between these stars and  $\mu$  Leporis, the luminous band then com-